



PATENT  
P55501

#17  
192

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

EN-SEUNG KANG *et al.*

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AUG 07 2003

Serial No.: 09/217,932

Examiner: K. ZAND

Technology Center 2100

Filed: 22 December 1998

Art Unit: 2132

For: DIGITAL CONTENT CRYPTOGRAPH AND PROCESS (as amended)


TRANSMITTAL OF TRANSLATIONS

Commissioner for Patents  
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Sir:

This transmittal accompanies certified English language translations of Korean Patent Application Serial No. 98/39808 filed on 24 September 1998 and Korean Patent Application Serial No. 98/39809 filed on 24 September 2003.

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I.D.: REB/kf



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Technology Center 2100

IN THE MATTER OF  
KOREAN PATENT APPLICATION  
UNDER SERIAL NO. 98-39809

I, THE UNDERSIGNED, HEREBY DECLARE:  
THAT I AM CONVERSANT WITH BOTH THE KOREAN AND THE ENGLISH  
LANGUAGES AND

THAT I AM A COMPETENT TRANSLATOR OF THE APPLICATION PAPERS  
THE PARTICULARS OF WHICH ARE SET FORTH BELOW:

KOREAN PATENT APPLICATION UNDER  
SERIAL NO.: 98-39809

FILED ON: September 24, 1998

IN THE NAME OF SAMSUNG ELECTRONICS CO.,  
LIMITED

FOR: PROTOCOL FORMAT FOR THE AUTHORS'  
ASSOCIATION PROTECTION AND PROTOCOL  
FORMAT PROCESSING SYSTEM

IN WITNESS WHEREOF, I SET MY HAND HERETO

THIS 19th DAY OF APRIL 2003

BY *msyi*  
MISOOK YI

[Translation]

PATENT APPLICATION

To: Director General  
The Patent Office

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Title of the Invention: PROTOCOL FORMAT FOR THE AUTHORS' ASSOCIATION  
PROTECTION AND PROTOCOL FORMAT PROCESSING SYSTEM

Request for Examination: Yes

This application is hereby filed pursuant to Article 42 of the Patent Law

This 24<sup>th</sup> day of September, 1998

/S/ Attorney: Eui-Seoup YOON

Encls.

## [ABSTRACT]

### [Abstract]

The present invention relates to a protocol format and protocol format processing system which is capable of generating a transmission format formed of a header, a field having an encoded rule, and an encoded digital information field in accordance with an encoded key in response to an inherent character stream of a user and transmitting the generated transmission format to a user, so that a user decodes a transmitted format.

The present invention includes a header having an information for an encoding such as an encoding rule, a digital information copyright protection protocol format formed of a body having an encoded digital information based on an information of the header, a protocol format encoding unit for converting the digital information into a digital information copyright protection protocol format, and a digital information copyright protection protocol format decoding unit for decoding the protocol format received from the digital information copyright protection protocol format encoding unit in accordance with an information of the header.

Therefore, the present invention is directed to generating an encoding key in a server in response to an inherent character stream of a user who wants to receive a paid digital information service through the network and downloading a paid digital information by the encoded key for thereby previously preventing a copy of a paid digital information.

### [Representative drawing]

Figure 5

[SPECIFICATION]

[Title of the present invention]

PROTOCOL FORMAT FOR THE AUTHORS' ASSOCIATION PROTECTION AND  
PROTOCOL FORMAT PROCESSING SYSTEM

5

[Brief description of the drawings]

Figure 1 is a schematic block diagram illustrating the construction of a digital information copy prevention apparatus of a digital information transmission system according to the present invention.

10

Figure 2 is a schematic block diagram for explaining another embodiment of a digital information copy prevention apparatus of a digital information transmission system according to the present invention.

Figure 3 is a flow chart of a method for protecting an illegal copy of a digital information of a service server of Figure 1.

15

Figure 4 is a flow chart illustrating for explaining a method for generating and transmitting an encoding key in a host server of Figure 2.

Figure 5 is a view for explaining the construction of a protocol format processing system according to the present invention.

20

Figure 6 is a view illustrating a protocol format for a copyright protection of a digital information according to the present invention.

Figure 7 is a view illustrating a header portion of Figure 6.

Figure 8 is a view illustrating a non-encoded header portion of Figure 7.

\*Numeral references of the drawings\*

10, 20: terminal

11,21: recording and reproducing apparatus

12, 22: service server

23: host server

5 14, 24: service paying proxy server

51: protocol format decoding unit

[Detailed description of the present invention]

[Objects of the present invention]

10 [Technical field of the invention and Background art of the field]

The present invention relates to a protocol format and protocol format processing system for a copyright protection of a digital information, and in particular to a protocol format and protocol format processing system for a copyright protection of a digital information which is capable of generating a transmission format formed of a header, a field having an encoded rule and an encoded digital information field based on an encoding key in response to an inherent character stream of a user in a server and transmitting the generated transmission format to the user, so that a user decodes a transmitted format.

20 Recently, peoples live in a flood of information provided through various media such as a broadcast, publication, etc.

Therefore, there is a provider who capable of integrating and supplying the information provided through various media, and a user selectively uses an information among many information provided by the provider.

Therefore, in a digital information transmission system, various information

are converted into a digital information, and the digital information is provided to a user by a provider. A user receives an information from the provider through the network.

5 In the thusly constituted digital information transmission system, an application program is capable of easily receiving a digital information by a user. Since the user is connected with the digital information transmission system through the network, the user is capable of receiving a certain information by downloading the same through the application program.

10 The digital information provided from the digital information transmission system is provided to a user for payment or for free. The server having a digital information transmission system which is capable of supplying a digital information determines the service charge with respect to each digital information which is provided at a payment basic.

15 When the user downloads the digital information having the determined service charge, the service server accumulates the service charge based on the using time of the information and charges to the user.

20 However, in the case that the user is connected with the server which provided a commercial digital information through the network and receives a paid digital information, almost users illegally distribute the information to others or use the copied digital information. At this time, the server having the digital information transmission system has a big damage. In this case, it is impossible to prevent the damage.

[Technical object of the present invention]

Accordingly, it is an object of the present invention to provide a protocol format and protocol format processing system which is capable of generating a transmission format formed of a header, a field having an encoded rule and an encoded digital information field based on an encoding key in response to an inherent character stream of a user in a server and transmitting the generated transmission format to the user, so that a user decodes a transmitted format.

[Construction and operation of the present invention]

To achieve the above objects, there are provided a header having an information for an encoding such as an encoding rule, a digital information copyright protection protocol format formed of a body having an encoded digital information based on an information of the header, a protocol format encoding unit for converting the digital information into a digital information copyright protection protocol format, and a digital information copyright protection protocol format decoding unit for decoding the protocol format received from the digital information copyright protection protocol format encoding unit in accordance with an information of the header.

The preferred embodiments of the present invention will be explained with reference to the accompanying drawings.

Figure 1 is a schematic block diagram illustrating the construction of a digital information copy prevention apparatus of a digital information transmission system according to the present invention. The construction of the present invention will be explained.

A terminal(10) requests a member registration to a user and transmits an



inherent character stream inputted by the user to a service server(20) and stores an encoded key requested by the user and downloads the encoded digital information from the service server(20) and decodes the encoded key.

The encoded key stored in the terminal(10) is generated in response to an inherent character stream of the user based on the request of the user during a new member registration. If the member registration is not requested, the digital information that the user wants to download is encoded using the encoded key and is supplied to the terminal(10) of the user through the network.

As shown in the drawings, the terminal(10) may include a PC(11a) having a common communication apparatus, and a recording and reproducing apparatus(11b) for receiving an encoded key through the PC(11a), recording the key into a storing medium and decoding the digital information using the stored encoding key.

The recording and reproducing apparatus(11b) may be formed of a portable type or holding type based on the kinds of the storing medium.

The terminal(10) is capable of implementing a communication and may be a cellular phone, digital TV, etc.

The service server(12) generates an encoding key in response to an inherent character stream transmitted from the terminal(10), stores with the inherent character stream and transmits to the terminal in the case that the user requests an encoding key, encodes the digital information requested by the user based on an encoding key and encoding algorithm based on the digital information lists. The terminal(10) downloads the encoded information.

The service payment proxy server(13) downloads the digital information

from the service server(12) based on the user's request and receives a signal for the charge and accumulates the digital information service charges to the user's ID and requests the charges to the user.

At this time, the inherent character stream is a user's resident registration  
5 number when the user registers to the service server. A certain character stream such as a drive license number may be used for thereby identifying the user.

Figure 2 is a schematic block diagram for explaining another embodiment of the digital information copy prevention apparatus of a digital information transmission system according to the present invention. The descriptions of the  
10 terminal(20), the recording and reproducing apparatus(21) and the service payment server which are the same as the first embodiment of Figure 1 will be omitted.

The service server 22 transmits a signal to the host server(23) for receiving an encoding key corresponding to the inherent character stream from the terminal(20) and receives the encoding key from the host server(23) and transmits  
15 to the terminal(20). The service server(22) has a digital information list and encodes the digital information requested by the user using the encoding key and downloads to the terminal(20).

The host server(23) generates an encoding key corresponding to the inherent character stream from the service server(22) and stores with the inherent  
20 character stream and transmits the encoding key to the service server(22) in response to the request signal of the service server(22).

The operation of the digital information copy prevention apparatus of a digital information transmission system according to the present invention will be described with reference to the accompanying drawings.

Figure 3 is a flow chart for explaining a method for preventing an illegal copy of a digital information in a service server of Figure 2.

As shown therein, the service server(22) judges whether a signal is inputted for registering a member by a user through the terminal(20)(S101). As a result of the judgement, in the case that the signal for registering the member is inputted, it is judged whether an inherent character stream is received by a user using the terminal(20)(S102).

As a result of the judgement of the step(S102), it is judged whether a user is a member or a new registration member by the inherent character stream when the inherent character stream is received from the terminal(20)(S103). As a result of the judgement, in the case of the new member, the service server(22) outputs a message in order for the user to input the member information and receives and stores the member registration information(S104).

As a result of the step(S101), if the signal is not inputted for requesting the member registration from the user, and as a result of the step(S102), if an inherent character stream is not inputted from the user, the mode of the digital information transmission system is performed based on the menu selected by the user(S104).

In the step(S104), after the service server(22) stores the member registration information, it is judged whether the request signal for receiving an encoding key from the terminal(20) is received(S105), and as a result of the step(S105), in the case that the request signal for receiving the encoding key is received, the service server(22) generates the encoding key corresponding to the user's inherent character stream and transmits to the user(S106). The operation of the step(S100) for downloading the paid digital information from the service

server(22) is finished.

In the operation of the step(S100), in the case that the user does not terminate the member registration, the encoding key is generated and maintained based on the user's inherent character stream.

5 In addition, in the step(S103), in the case that the inherent character stream inputted by the user is the registered inherent character stream, it is judged that the user is the user having the encoding key. Thereafter, the step(S110) in which it is judged whether the download request signal is received from the user is performed. The steps(S104 to S106) are performed with respect to the new registration  
10 member.

After the step(S106) is performed, it is judged whether the download request signal with respect to the digital information is received from the terminal(20). As a result of the judgement, if the download request signal is received, the encoding key generated by the service server(22) or the encoding key  
15 generated by the host server(23) is received, and the digital information that the user wants to download is encoded and transmitted to the user(S120).

In addition, the service server(22) transmits the service charge which is generated after the encoded digital information is transmitted to the user(S120) to the service payment proxy server(24)(S130) for thereby accumulating in the stored  
20 charges. The service charge payment proxy server(24) accumulates the service charges for the use of the digital information by the user and transmits a receipt to the user.

Figure 4 is a flow chart for explaining a method for generating and transmitting the encoding key in the host server of Figure 2.

As shown therein, the host server(23) judges whether the inherent character stream is received from the service server(22)(S400). As a result of the judgement, it is judged whether there is the same inherent character stream by comparing the inherent character stream and the stored inherent character stream(S410).

5 As a result of the judgement of the step(S410), in the case that there is the same inherent character stream, the encoding key stored with the inherent character stream is transmitted to the service server(22)(S420), and in the case that there is not the same inherent character stream, the encoding key is generated(S430), and the user ID and the inherent character stream are stored with  
10 the generated encoding key(S440).

At this time, as shown in Figure 2, the step(S106) performed in the service server(22) and the steps(S400~S440) performed in the host server(23) are performed in the case that the host server(23) is separated provided. As shown in Figure 1, in the case that only the service server(11) is provided, the steps of the  
15 service server(11) is integrally performed, and then the encoding key corresponding to the user's inherent character stream is generated, and the generated encoding key is transmitted to the user. The above operation is not shown in the flow chart. However, the operation may be understood based on Figures 3 and 4. So, the description thereof will be omitted.

20 Figure 5 is a view for explaining the construction of the protocol format processing system according to the present invention. As shown therein, there are provided a protocol format encoding unit(50) for generating a protocol for the copyright protection of the digital information, and a copyright protection protocol format decoding unit(51) for reproducing the protocol format from the copyright

protection protocol format encoding unit950) to the digital information based on the information of the header.

Figure 6 is a view illustrating the protocol format for the copyright protection of the digital information. As shown therein, the protocol format for the copyright protection of the digital information is formed of a body of a header and an encoded digital information.

Figure 7 is a view illustrating a header portion of Figure 6. As shown therein, in the protocol format for the copyright protection of the digital information, the header is formed of a field for describing whether the body is formed of an information which supports the copyright, a field for describing the size of the non-encoded header, a non-encoded header, a field for describing the size of the encoded header, and an encoded header.

Figure 8 is a view illustrating the non-encoded header portion of Figure 7. As shown therein, the non-encoded header is formed of a field for a version of the copyright protection protocol, a field for the format of the digital information, a field for the code of the digital information provider, an information field for the code of the algorithm used for encoding the user's inherent character stream, a field for the number of the users who co-use in the terminal and the inherent character stream of each user, and a field for the number of the users who co-use in the recording and reproducing unit and the inherent character stream of each user.

[Effects of the present invention]

Therefore, in the present invention, the encoding key corresponding to the inherent character stream of the user who receives the paid digital information

through the network is generated in the server, and the paid digital information is downloaded by the generated encoding key, so that it is possible to prevent the illegal copy of the paid digital information.

[CLAIMS]

[Claim 1]

A protocol format processing system, comprising:

a protocol format encoding means for generating a protocol for a copyright  
5 protection of a digital information; and

a copyright protection protocol format decoding means for reproducing a  
protocol format received from the copyright protection protocol format encoding  
means as a digital information based on an information of the header.

10 [Claim 2]

A protocol format for a copyright protection of a digital information,  
comprising:

a body formed of a header and an encoded digital information.

15 [Claim 3]

The format of claim 2, wherein said copyright protection protocol format  
includes a value added information field.

[Claim 4]

20 The format of claim 2, wherein said header in the protocol format for a  
copyright protection of a digital information includes:

a field for describing whether a body is formed of an information which  
supports the copyright;

a field for describing the size of a non-encoded header;



a non-encoded header;

a field for describing the size of the encoded header; and

an encoded header.

5 [Claim 5]

The format of claim 4, wherein said non-encoded header includes:

a field with respect to a copyright protection protocol;

a field with respect to a format of a digital information;

a field with respect to a code of a digital information provider;

10 an information field with respect to a code of an algorithm used for encoding  
a user's inherent character stream;

a field with respect to the number of co-using users in a terminal apparatus  
and an inherent character stream of each user; and

15 a field with respect to the number of co-using users in a recording and  
reproducing means and an inherent character stream of each user.

Fig. 1

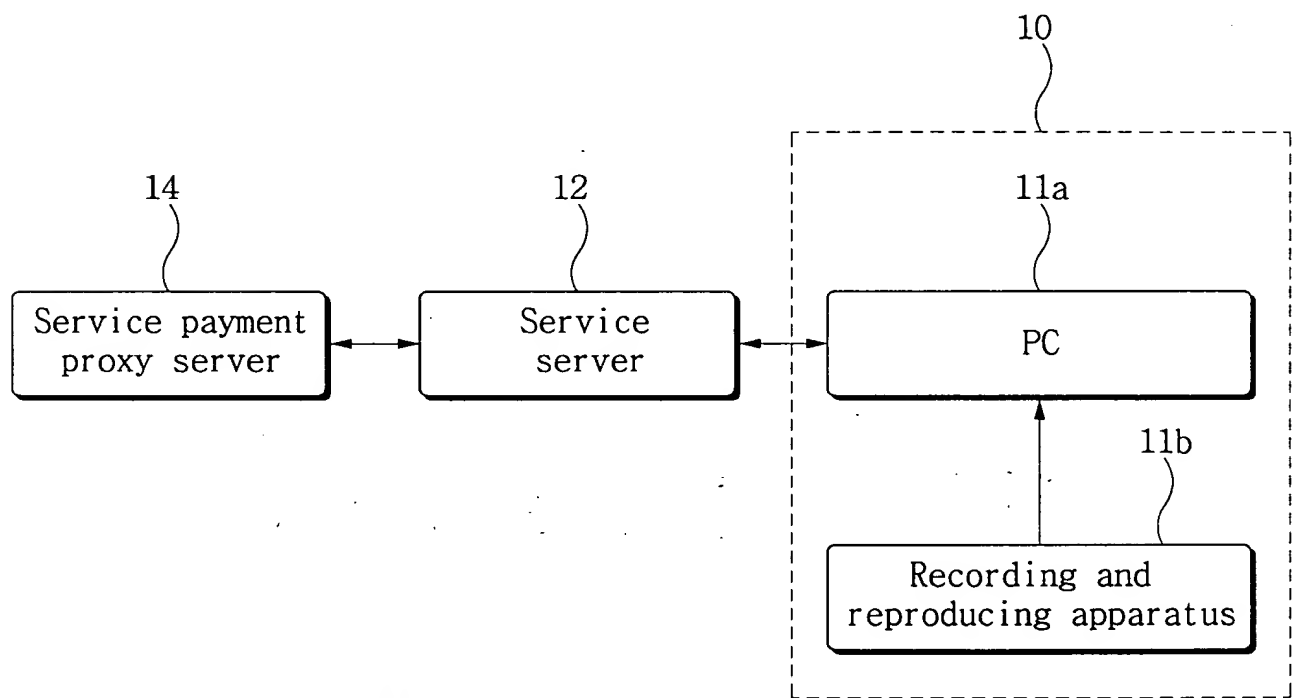


Fig. 2

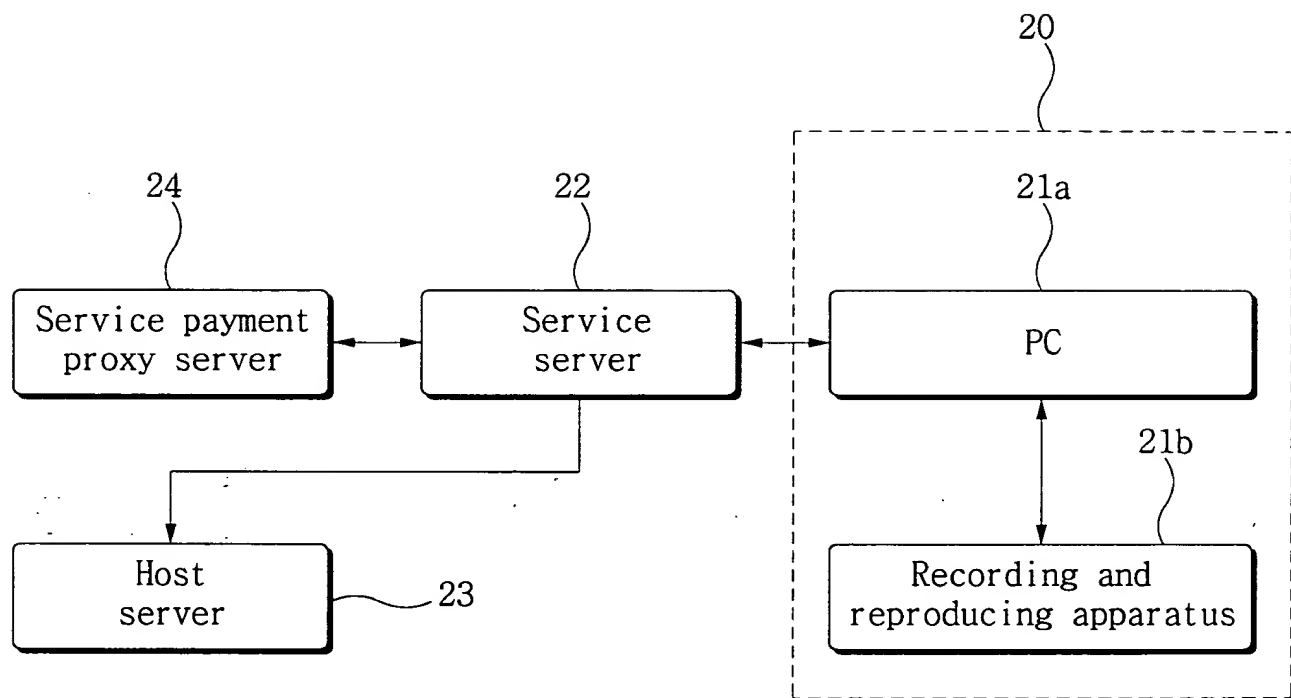


Fig. 3

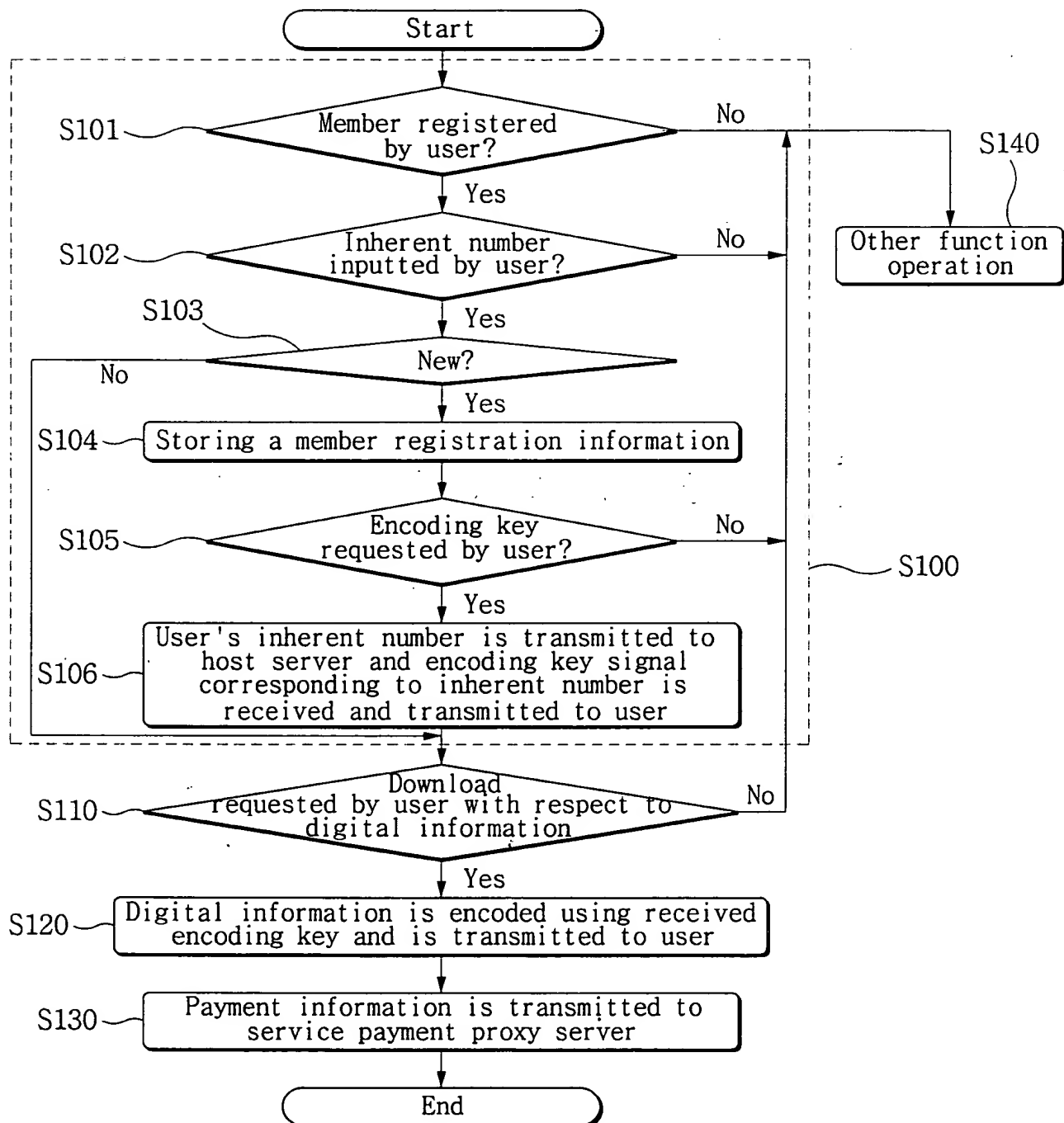


Fig. 4

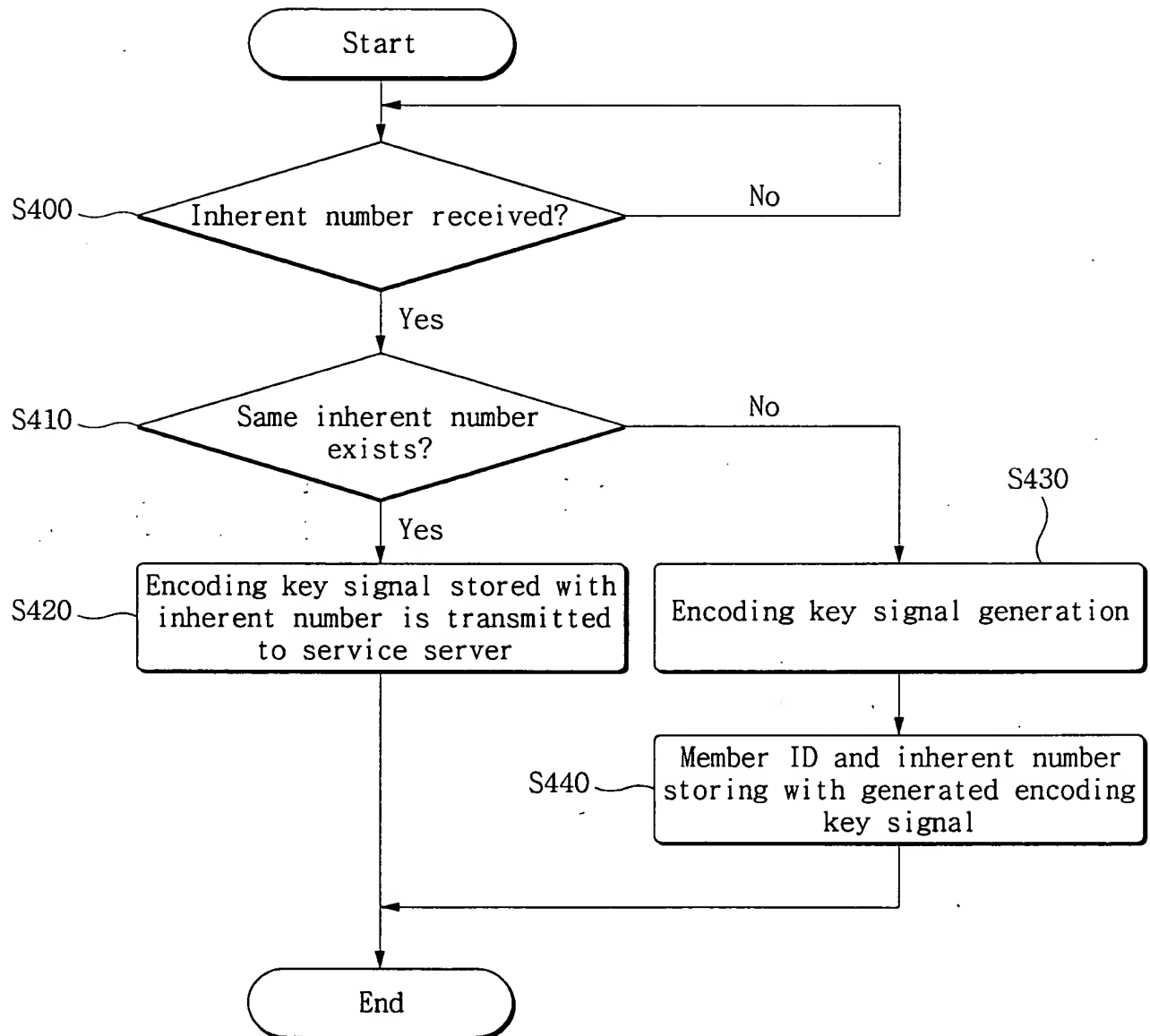


Fig. 5

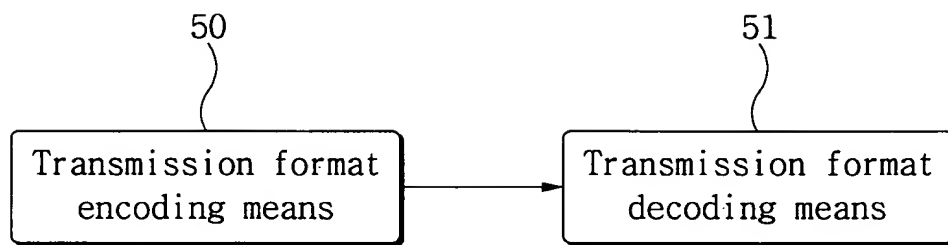


Fig. 6

Header	Size of encoded digital information	encoded digital information	Value added information
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Fig. 7

Copyright support information	Size of non-encoded header	non-encoded header	Size of encoded header	encoded header
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Fig. 8

Copyright library version	Digital conversion format	Code of digital information provider	Algorithm code for encoding inherent number	Number of PC co-using users and inherent number	Number of PC co-using users and inherent number in recording and reproducing apparatus
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